RSPG Consultation – RSPG 17-034

RADIO SPECTRUM POLICY GROUP
STRATEGIC SPECTRUM ROADMAP TOWARDS 5G FOR EUROPE
DRAFT RSPG Second Opinion on 5G networks

Deadline for submission of comments – Sunday 7th January 2018

EUTC

The European Utilities Telecom Council (EUTC) is a non-profit organization delivering education, collaboration, best practices and thought leadership in telecommunication technology to utilities, other critical infrastructure providers and regulators, ensuring efficient, secure, sustainable and affordable smart infrastructure solutions. EUTC is one of a number of regional Utility Telecom and Technology Councils coordinated via a Global Advisory Committee to highlight the growing importance of telecommunications in all utilities around the world.

EUTC membership is comprised of major gas and electricity generation, transmission and distribution companies from across Europe plus vendor partners representing telecommunications suppliers focused on utility telecoms provision.

Summary

EUTC welcomes the opportunity to respond to this consultation and in particular supports the actions of the RSPG to encourage the development of appropriate coexistence arrangements to enable access to the bands under consideration whilst at the same time seeking to minimise the disruption to incumbent systems.

Utilities make extensive use of fixed links to support critical operations in utility networks. In the case of the 26 GHz band, EUTC sees the establishment of appropriate coexistence arrangements as key to maximising the utilisation of the frequency band and avoid the risk of regulatory failure.

Utility Telecom Tower in Madrid

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Detail

Introduction

EUTC welcomes the opportunity to provide input to the second 5G draft opinion and in particular the ongoing use of the spectrum in the 26 GHz band by fixed links, both point-to-point and point-to-multipoint. This band to date has been extensively used by Communications Network Operators, both fixed and mobile, and also Enterprise users, including utilities. Over recent years there has been a prioritisation for release of lower frequency, sub-6 GHz spectrum, to the Mobile Service and as such this has resulted in the displacement of fixed link requirements of the Energy Utilities to higher frequency bands, e.g. 26 GHz. However, with the identification of the 26 GHz band as a pioneer band for 5G in Europe it is important that sufficient protection is afforded to incumbent services, in particular existing fixed links that are a critical operational component of the Energy Utilities control systems.

One gigahertz initial spectrum release of the 26 GHz Band

EUTC are supportive of an approach which in the first instance seeks to make 1 GHz available to the market for 5G provided this is managed in such a way to avoid disruption to incumbent services – perhaps this approach would be optimised by seeking to make the 1 GHz available at the top of the frequency range. This would also maximise the tuning range with equipment being developed for the 28 GHz Band adopted for 5G in other geographic regions.

Anticipated deployment characteristics for 5G in the 26 GHz Band

The RSPG notes that the deployment of 5G systems at 26 GHz are;

> *'Likely to be areas of high demand, e.g. Transport Hubs, entertainment venues, etc. 'because of its characteristics 26 GHz will not be used to create wide area coverage.' Moreover, the RSPG note that 5G networks will not be homogeneous and the 26 GHz band will be utilised to provide 'islands of very high capacity.'*

On this basis it seems unlikely that the 26 GHz band will be deployed beyond targeted locations requiring very high data throughput. Nevertheless, every effort should be made to ensure that in the event that 5G systems at 26 GHz are to be deployed in close proximity to Fixed Links in the band, then appropriate coexistence arrangements should be established to mitigate the risk of interference to fixed services whilst also seeking maximise the utilisation of the band.

A2.1.2 New ways of sharing

Technology developments in terms of beam forming capability will enable greater potential for band sharing. EUTC welcomes such technical enhancements being established within the 5G standard to mitigate the potential for interference to incumbent users from the deployment of 5G systems in the 26 GHz band.

In terms of use of new physical support (street furniture being a specific example in the consultation), EUTC notes that there are likely to be challenges in obtaining access to power supplies for this infrastructure in a cost effective manner: EUTC would

welcome the opportunity to participate in any work to ensure access to suitable power supplies is not an impediment to the widespread roll-out of 5G. Access to utility fibre networks for back-haul may also be of value in remote areas.

A2.1.3 Spectrum sharing with fixed service

EUTC welcomes RSPG's observation:

> *'With regard to the 26 GHz band (and similarly with other mmWave bands), large parts are currently used for wireless fixed links in European countries. Depending on the location of the fixed links, the demand for 5G small cells and the extent to which interference can be mitigated using new technologies, it may be possible to deploy 5G small cells within the same frequency range as some of the existing fixed links.'*

To this end, inputs have been made to the CEPT process to establish the appropriate technical characteristics for 5G to coexist with the Fixed Service in the 26 GHz band. In addition, an ECC document[1] is being prepared to define the approach to sharing within the band.

In any process to examine co-existence utility fixed services and 5G, it should be noted that utility use of the fixed service in this band is often for strategic back-bone networks, not network access as deployed by commercial mobile operators.

Utility radio tower hosting VHF Private Mobile Radio (PMR), UHF telemetry (SCADA) together with microwave fixed service backhaul.

However, in the event that co-existence issues cannot be resolved in specific geographic locations we encourage an approach that in the first instance seeks to limit the frequency block given over to the 5G service to the top 1 GHz range of the 26 GHz band so that the fixed links could be accommodated in the lower part of the band. In the event that in due course additional spectrum were to be given over to the 5G service with a resulting displacement of the fixed service we welcome the proposal by the RSPG to adopt a progressive approach to any subsequent clearance. Since utilities themselves are regulated businesses with limited rates-of-return on capital investments, appropriate funding arrangements will need to be established to facilitate the displacement of the fixed service and compensate for any sunk capital investment remaining. Nevertheless, it is anticipated that any need for displacement should be by exception.

[1] ECC Decision (18)xx DRAFT 'Harmonised technical conditions for Mobile/Fixed Communications Networks (MFCN) in the band 24.25-27.50 GHz '

A2.1.4 Sharing with other co-primary services

b) Sharing with other primary services at 26 GHz

EUTC welcomes the position adopted in the first RSPG opinion on 5G, that;

> *'the harmonisation of the 26 GHz band for 5G will need to take into account other services in the same band or in the adjacent bands.'*

As such we are encouraged by the work underway within CEPT and ETSI to establish the appropriate coexistence arrangements and technical standards to ensure that the future use of the 26 GHz band is optimised for all users.

A2.3 Considerations of the relevance of 5G to IoT, ITS and verticals

The RSPG's assertion in A2.3 that demand for business-specific applications could largely be covered by mobile providers in future has not been substantiated. In particular the Energy Utilities utilise control systems in their networks that require ultralow latency and high resilience and to date the mobile networks have been unable to service these operational requirements. In this context, we note that resilience – especially power resilience – is a function of the communications network infrastructure, not the technology. Bespoke solutions have been deployed by utilities and operated independently of the mobile networks.

Whilst, there are expectations that 5G systems may have operating characteristics compatible with those demanded by Energy Utilities this is still unproven. Moreover, the increased risk of cyber-attack to enterprise systems enabled by public mobile networks is also a key concern to be addressed. As such we would encourage the RSPG to reserve judgement on the future characteristics of market supply until there is greater understanding of the above matters and mobile operators' capabilities.

A4.2.2 Policy / regulatory issues & spectrum management aspects relating to second stage/long term 5G mm-wave frequency bands.

We are encouraged by RSPG's acknowledgement that the new regulatory framework that will be established to provide a flexible and predictable environment for 5G development will be subject to ensuring harmonious co-existence of all primary services. To this end we welcome the activities underway within CEPT and ETSI to establish the appropriate technical coexistence arrangements to avoid mitigation to incumbent users, e.g. Fixed Links, in the 26 GHz band.

Conclusion

EUTC welcomes RSPG's intention to ensure appropriate protection is afforded to the incumbent services when the technical characteristics of 5G services are established for the '5G Pioneer Bands'. In addition, EUTC is supportive of the adoption of regulatory provisions designed to facilitate the coexistence of 5G services alongside incumbent services in the bands which will be key to maximising the utilisation of the bands over the long term.

Adrian Grilli, Secretary
Radio Spectrum Group, European Utility Telecom Council, 7 January 2018, Brussels